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CERTIFICATE OF EXPRESS MAIL	
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Date of Deposit:	October 13, 2004
I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to: Commissioner for Patents, PO Box 1450, Alexandria VA, 22313-1450.	
Rebecca R. Ginn	

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:  
David Becker et al.

Serial No.: 09/923,058

Filed: August 6, 2001

For: METHODS FOR ENHANCING SILICON  
DIOXIDE TO SILICON NITRIDE  
SELECTIVITY (AS PREVIOUSLY  
AMENDED)

Group Art Unit: 1763

Examiner: George A. Goudreau

Atty. Dkt. No.: 102-0072US-4

**PETITION TO ACCEPT UNINTENTIONALLY DELAYED PRIORITY CLAIM  
PURSUANT TO 37 C.F.R. § 1.78(A)(3)**

Mail Stop Petition  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
*Attn: Office of Petitions*

Dear Sir:

The instant '058 application, filed August 6, 2001, is a continuing application which claims priority back to an original parent application filed June 15, 1992 through a "string" of applications which are summarized in the following chart:

10/15/2004 FFANAI2 00000031 501922 09923058  
01 FC:1454 1370.00 DA

<i>Serial #</i>	<i>Filing Date</i>	<i>Relation to Earlier</i>	<i>Issue #</i>	<i>Issue Date</i>
07/898,505	15-Jun-92		5,286,344	15-Feb-94
08/152,755	15-Nov-93	Continuation-in-part of '505	5,880,036	9-Mar-99
08/905,891	4-Aug-97	Continuation of '755	6,015,760	18-Jan-00
09/344,277	30-Jun-99	Continuation of '891	6,287,978	11-Sep-01
09/923,058	06-Aug-01	Continuation of '277		

When filing the instant '058 application, Applicant filed a copy of the preceding parent application (the '277 application) as it was earlier filed. That application contained in its first paragraph a priority claim to all earlier applications (see attached, Exhibit A), i.e., the '891, '755 and '505 applications.

This meant however that the '058 application as filed (i.e., the '277 application as filed) lacked recitation of a priority claim to the '277 application itself. However, a claim of priority to the '277 application was made in the filing papers that accompanied the filing of the '058 application, as well as to all earlier applications in the continuing string (see attached, Exhibit B). Accordingly, the USPTO recognized Applicant's claim of priority to all earlier applications (i.e., the '277, '891, '755 and '505 applications) in the filing receipt that accompanied the instant '058 application (see attached, Exhibit C).

Applicant later amended the specification of the '058 application on January 17, 2002 by preliminary amendment to add to the specification the claim to the '277 application that was missing in the application as it was filed (see attached, Exhibit D) to specifically put the full priority "string" into the text of the '085 application. However, Applicant has just appreciated that this amendment to the specification was apparently made too late in accordance with 37 C.F.R. § 1.78(a)(2)(ii), which requires (as pertinent here) that the specification needed to be amended within four months of the filing date of

the '085 application (i.e., within four months of August 6, 2001). Essentially, Applicant's amendment to the '085 specification to add reference to the '277 application was apparently made several weeks too late.

*Applicant therefore believes that it is prudent to petition under 37 C.F.R. § 1.78(a)(3) to have the priority claim recognized as unintentionally delayed, despite the fact that the full extent of Applicant's claim to priority was made (although apparently not in accordance with the strictures of Rule 78(a)), and that the USPTO has already recognized the full extent of Applicant's priority claim in the '085 application's filing receipt.*

Therefore, in accordance with 37 C.F.R. § 1.78(a)(3), Applicant must:

(i) Make a reference to the correct priority claim as required by 37 C.F.R. § 1.78(a)(2). This is being addressed through an amendment to the specification filed herewith<sup>1</sup>;

(ii) Pay the surcharge of 37 C.F.R. § 1.17(t) of \$1370.00. *The USPTO is authorized to deduct this fee, and any other necessary fees stemming from the papers filed herewith, from Deposit Account No. 501922, referencing attorney docket 102-0072US-4; and*

(iii) Attest to the delay in filing the correct priority claim, to which Applicant states the following: *The entire delay between the date the proper priority claim was due under 37 C.F.R. § 1.78(a)(2)(ii) and the date this priority claim was filed (herewith) was unintentional.*

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<sup>1</sup> Applicant is not entirely sure if submission of a new amendment is necessary, because, as noted above, Applicant has already added the correct and full priority claim to the specification of the '058 application by a preliminary amendment filed on January 17, 2002. However, this amendment to the specification is submitted again herewith as a precaution.

\* \* \* \* \*

Applicant assumes that this is all that is required to effectuate its corrected priority claim, and would appreciate acknowledgement that this corrected priority claim has been accepted and that this petition has been granted. Applicant further requests that any patent issuing from the instant application contain the correct cross-reference to the applications to which priority is claimed on the front of the patent. Finally, while a corrected priority claim would normally warrant the issuance of an updated filing receipt, because here the filing receipt already indicates the full extent of the priority claim, Applicant is unsure if the issuance of a new filing receipt is necessary, and trusts that the Office of Petitions will do whatever is appropriate in this regard under the circumstances.

Please feel free to contact the undersigned with any questions.

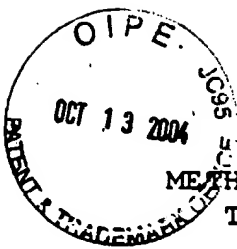
Respectfully submitted,

10-13-04  
Date

Terril Lewis  
Terril Lewis, Reg. No. 46,065

**CUSTOMER NO. 29855**

Wong, Cabello, Lutsch,  
Rutherford & Brucculeri, L.L.P..  
20333 SH 249, Suite 600  
Houston, TX 77070  
832/446-2405  
Fax 832/446-2424



## Exhibit A

Serial No.

Inventor(s): Becker et al.

### METHOD FOR ENHANCING OXIDE TO NITRIDE SELECTIVITY THROUGH THE USE OF INDEPENDENT HEAT CONTROL

#### Cross-Reference to Related Applications

This is a continuation application of co-pending U.S.  
5 Application Serial Number 08/905,891, filed August 4, 1997; which  
was a continuation of U.S. Application Serial Number 08/152,755,  
filed November 15, 1993, which issued as U.S. Patent Number  
5,880,036 on March 9, 1999; which was a continuation-in-part of  
application Serial Number 07/898,505, filed June 15, 1992, which  
10 issued as U.S. Patent Number 5,286,344 on February 15, 1994.

#### Field of the Invention

This invention relates to semiconductor manufacturing, and  
more particularly to a process for selectively etching a silicon  
dioxide layer disposed on a silicon nitride layer, useful when  
15 etching features have submicron geometries.

#### Background of the Invention

With geometries shrinking, it is becoming more difficult to  
align small contacts in between closely spaced wordlines or other  
conductive structures. Therefore, an etch is needed which would  
20 etch an oxide layer and stop on the underlying nitride layer.  
The highly selective etch should also display consistency for  
manufacturing purposes.

Current manufacturing processes of multilayer structures  
typically involve patterned etching of areas of the semiconductor  
25 surface which are not covered by a pattern of protective  
photoresist material. These etching techniques use

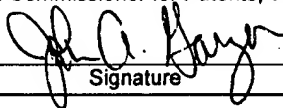
**Exhibit B**

**CERTIFICATE OF EXPRESS MAIL**

NUMBER EL 831814792 US

DATE OF DEPOSIT August 6, 2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to: Commissioner for Patents, Washington, D.C. 20231.

  
Signature



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Atty. Dkt. No.: MCRO284--2/LWT**

**Prior Application Examiner:  
George Goudreau**

**Classification Designation:**

**BOX PATENT APPLICATION**  
Commissioner for Patents  
Washington, D.C. 20231

**Prior Group Art Unit: 1763**

**REQUEST FOR FILING CONTINUATION APPLICATION  
UNDER 37 C.F.R. § 1.53(b)**

This is a request for filing a continuation application under 37 C.F.R. § 1.53(b) of co-pending prior application Serial No. 09/344,277, filed June 30, 1999, entitled "Method For Enhancing Oxide to Nitride Selectivity Through The Use Of Independent Heat Control." The Commissioner is requested to grant Applicants a filing date in accordance with Rule 1.53.

Priority under 35 U.S.C. § 120 is hereby claimed to Ser. No. 09/344,277. The present application contains no new matter not present in Ser. No. 09/344,277. Please note that

## **Exhibit B**

09/344,277 is a continuation of 08/905,891 (U.S. Pat. 6,015,760) filed August 4, 1997, which is a continuation of 08/152,755 (U.S. Patent 5,880,036) filed November 15, 1993, which is a continuation-in-part of 07/898,505 (U.S. Patent 5,286,344) filed June 15, 1992. Priority is claimed to these prior applications as well.

Enclosed is a copy of the prior application Serial No. 09/344,277 as originally filed, including specification, claims, drawings, and declaration. The undersigned hereby verifies that the attached papers are a true copy of the prior application as originally filed and identified above, that no amendments (if any) referred to in the declaration filed to complete the prior application introduced new matter therein, and further that this statement was made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statement may jeopardize the validity of the application or any patent issuing thereon. The inventorship is the same as prior Application Serial No. 09/344,277.

Enclosed is a copy of the Assignee's Election under 37 C.F.R. § 3.73 and Power of Attorney filed in Ser. No. 09/344,277. As with Ser. No. 09/344,277, this application is presently assigned to Micron Technology, Inc.

Enclosed are an Information Disclosure Statement (IDS) and accompanying form PTO 1449.

**Exhibit C**

UNITED STATES PATENT AND TRADEMARK OFFICE

 COMMISSIONER FOR PATENTS  
 UNITED STATES PATENT AND TRADEMARK OFFICE  
 WASHINGTON, D.C. 20231  
 www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/923,058	08/06/2001	1763	872	MCRO284-- 2/LWT	3	29	3

CONFIRMATION NO. 1840

## FILING RECEIPT



\*OC00000006806208\*

 Terril G. Lewis  
 HOWREY SIMON ARNOLD & WHITE, LLP  
 750 Bering Drive  
 Houston, TX 77057-2198

Date Mailed: 09/28/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

## Applicant(s)

 David S. Becker, Boise, ID;  
 Guy T. Blalock, Boise, ID;  
 Fred L. Roe, San Jose, CA;

HOWREY SIMON ARNOLD &amp; WHITE

OCT 02 2001

## Assignment For Published Patent Application

Micron Technologies, Inc.;

HOWREY SIMON ARNOLD &amp; WHITE

## Domestic Priority data as claimed by applicant

 THIS APPLICATION IS A CON OF 09/344,277 06/30/1999 PAT 6,287,978  
 WHICH IS A CON OF 08/905,891 08/04/1997 PAT 6,015,760  
 WHICH IS A CON OF 08/152,755 11/15/1993 PAT 5,880,036  
 WHICH IS A CIP OF 07/898,505 06/15/1992 PAT 5,286,344

## Foreign Applications

If Required, Foreign Filing License Granted 09/27/2001

Projected Publication Date: 01/03/2002

Non-Publication Request: No

Early Publication Request: No

DOCKETED ☒ UPDATED ☐

Previously Not Required

Appl. Info *Filing Receipt*Reg./Grant Info *0-2-01*

Action Required: \_\_\_\_\_

Date Due/Done: \_\_\_\_\_

By: *PL* Checked *AM*

RECEIVED

OCT 03 2001

HOWREY, SIMON, ARNOLD &amp; WHITE



**Title**

Method for enhancing oxide to nitride selectivity through the use of independent heat control

**Preliminary Class**

438

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**LICENSE FOR FOREIGN FILING UNDER  
Title 35, United States Code, Section 184  
Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Office of Export Administration, Department of Commerce (15 CFR 370.10 (j)); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

**Exhibit D**

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent Office, at 703-305-7118 on the date below:

Date

Signature

1/17/02

*Janice J. Harris*

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

David Becker et al.

Group Art Unit: 1763

Serial No.: 09/923,058

Examiner: unk

Filed: August 6, 2001

Atty. Dkt. No.: MCRO284--2/LWT

For: METHODS FOR ENHANCING SILICON  
DIOXIDE TO SILICON NITRIDE  
SELECTIVITY (AS AMENDED HEREIN)

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Please consider the enclosed preliminary amendment. Applicant has brought the total number of claims in the application to 94, but only three independent claims are now pending. Hence it is believe that the Applicant owes this office  $(94 - 20) * \$18.00 = \$1,332.00$  in connection with this filing. The Assistant Commissioner is authorized to deduct this fee, or any other fees that are due in connection with this response or otherwise, to Deposit Account No. 01-2508/MCRO284--2/LWT.

Reconsideration of the application is respectfully requested.

## Exhibit D

### **I. AMENDMENTS**

- **Please change the title of the application to the following:**

-- METHODS FOR ENHANCING SILICON DIOXIDE TO SILICON NITRIDE SELECTIVITY ---

- **Please replace the abstract with the following paragraph:**

-- A process for controlling the plasma etch of a silicon dioxide layer at a high etch rate and high selectivity with respect to silicon nitride, particularly in a multilayer structure, by (1) maintaining various portions of the etch chamber at elevated temperatures, and/or (2) using an etch chemistry having a fluorohydrocarbon gas containing at least as many hydrogen atoms as fluorine atoms, preferably CH<sub>2</sub>F<sub>2</sub> or CH<sub>3</sub>F. --

- **Please replace the specification paragraph beginning at page 1, line 4 with the following paragraph:**

-- This is a continuation application of co-pending U.S. Application Serial Number 09/344,277, filed June 30, 1999, which issued as U.S. Patent Number 6,287,978 on September 11, 2001; which was a continuation of U.S. Applicant Serial Number 08/905,891, filed August 4, 1997, which issued as U.S. Patent Number 6,015,760 on January 18, 2000; which was a continuation of U.S. Application Serial Number 08/152,755, filed November 15, 1993, which issued as U.S. Patent Number 5,880,036 on March 9, 1999; which was a continuation-in-part of U.S. A[a]pplication Serial Number 07/898,505, filed June 15, 1992, which issued as U.S. Patent Number 5,286,344 on February 15, 1994. --